## **CLAIMS**:

- 1. A method of fabricating a cathode, comprising: depositing a carbon material on a portion of a titanium substrate; annealing the carbon material and the substrate in a heated atmosphere at a reduced pressure to form an intermediate titanium carbide layer between the deposited carbon material and the titanium substrate; and removing remaining carbon material to expose the intermediate titanium carbide surface as an active cathode material.
- 2. A method according to claim 1, further comprising the step of postprocessing the titanium carbide layer.
- 3. A method according to claim 1, wherein the depositing step is performed by at least one of: an ink jet printing process, a thermal transfer printing process, a hot stamping process, a dye sublimation process, a screen printing process, a chemical vapor deposition process, a sputtering process, a manually painting process.
- 4. A method according to claim 3, wherein the ink jet printing process comprises a thermal ink jet printing process.
- 5. A method according to claim 3, wherein the ink jet printing process comprises a piezoelectric ink jet printing process.
- 6. A method according to claim 3, wherein the ink jet printing process comprises an acoustic ink jet printing process.

- 7. A method according to claim 1, wherein the carbon comprises substantially pure graphite.
- 8. A method according to claim 7, wherein the substantially pure graphite comprises a plurality of granules of graphite powder.
- 9. A method according to claim 1, wherein the removing step comprises a manual removal of the carbon.
- 10. A method according to claim 9, wherein the removing step comprises one of: abrading, rubbing, scraping, scuffing, chafing, filing, grating, brushing, polishing, wiping, or sanding.
- 11. A method according to claim 1, wherein the removing step comprises a machinery assisted removal step.
- 12. A method according to claim 1, wherein the machinery assisted step comprises one of: sanding, grinding, buffing, pneumatically-blasting with particulate material, polishing.
- 13. A method according to claim 1, wherein the titanium substrate comprises an interior portion of an electrochemical cell.
- 14. A method according to claim 13, wherein the electrochemical cell comprises a capacitor.

- 15. A method according to claim 14, wherein the capacitor comprises a tantalum anode spaced from the cathode and wherein the tantalum anode and the cathode are in fluid communication with an electrolyte.
- 16. A method according to claim 15, wherein the capacitor is disposed within a hermetically-sealed implantable medical device.
- 17. A method according to claim 16, wherein the implantable medical device comprise an implantable cardioverter-defibrillator.
- 18. A method according to claim 1, wherein the titanium substrate comprises a substantially flat portion of titanium and at least a part of the surface of said portion is roughened.
- 19. A method according to claim 1, further comprising activating the titanium carbide layer.
- 20. A method according to claim 1, wherein the carbon material comprises a carbon nanotube material.
- 21. A method according to claim 20, wherein the carbon nanotube material comprises a single-walled carbon nanotube material.
- 22. A method according to claim 3, wherein the chemical vapor deposition process comprises a plasma-enhanced chemical vapor deposition process.
- 23. A carbide cathode, consisting of: a titanium substrate; and

a layer of titanium carbide disposed on a surface portion of said substrate.

- 24. A cathode according to claim 23, wherein the titanium substrate comprises a substantially flat sheet of titanium.
- 25. A cathode according to claim 23, wherein the titanium substrate comprises an interior portion of a casing for a capacitor.
- 26. A cathode according to claim 25, wherein the capacitor further comprises: a valve metal anode spaced from the cathode; a porous separator material disposed between the valve metal anode and the cathode; and

  a liquid electrolyte in fluid communication with both the valve metal anode and the cathode.
- 27. A cathode according to claim 26, wherein the valve metal anode comprises a tantalum anode slug.
- 28. A cathode according to claim 27, wherein the capacitor is operatively coupled within an implantable medical device.
- 29. A cathode according to claim 28, wherein the implantable medical device comprises a cardioverter-defibrillator.
- 30. A cathode according to claim 29, further comprising a pair of capacitors operatively coupled within the cardioverter-defibrillator.